PCB GROUP INC.

Lesser Known Capabilities of IEEE 1451.4 TEDS and TMS Software Support For Each

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THE MODAL SHOP INC.

LDL A PCB GROUP CO.

PCB PIEZOTRONICS INC.

sti technologies
turning experience into value

Oceana Sensor Technologies, Inc.

Presentation Roadmap

- *Core Functionality of IEEE 1451.4*
  - Mixed-Mode Interface
  - Self Identification
  - Self Configuration
- Scalability
- Flexibility
- TMS Venona

Core Functionality of Dot 4

- Define a Dot 4 Object
  - Mixed Mode Interface From Host To Sensor
    - Analog/Digital
    - Digital Mode Accesses TEDS
      - Transducer Electronic Data Sheet
  - Self Identification
  - Self Configuration

Core Functionality of Dot 4

- Mixed Mode Interface To Sensors
  - ICP®, IEPE
    - Inverted Excitation
  - Multi-Wire Sensors
    - Use Existing Wires, or…
    - Add Another

Core Functionality of Dot 4

- Self Identification
  - Determine What Type of Sensor It Is
    - Excitation / Signal Conditioning Required
    - Manufacturer ID, Serialization, Calibration
    - Available Dot 4 Configurations
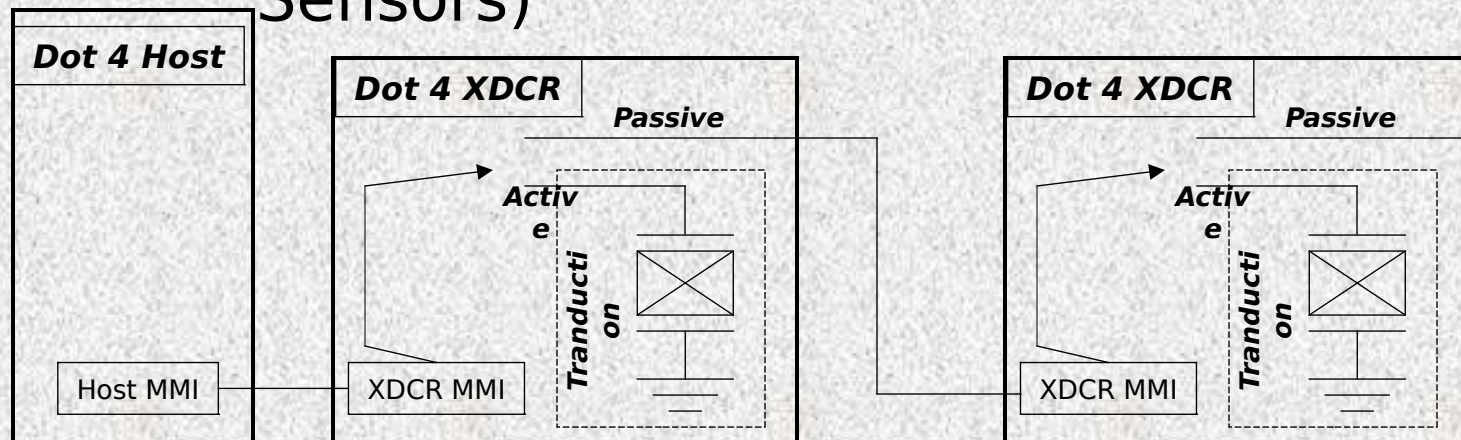 - TEDS (Transducer Electronic Data Sheet)

Core Functionality of Dot 4

- Self Configuration
  - Expose Multiple Configurations To Dot 4 Host
    - Active or Passive Config (Multi-Drop Sensors)
    - Multi-gain Config (Self-Attenuating Force Sensors)
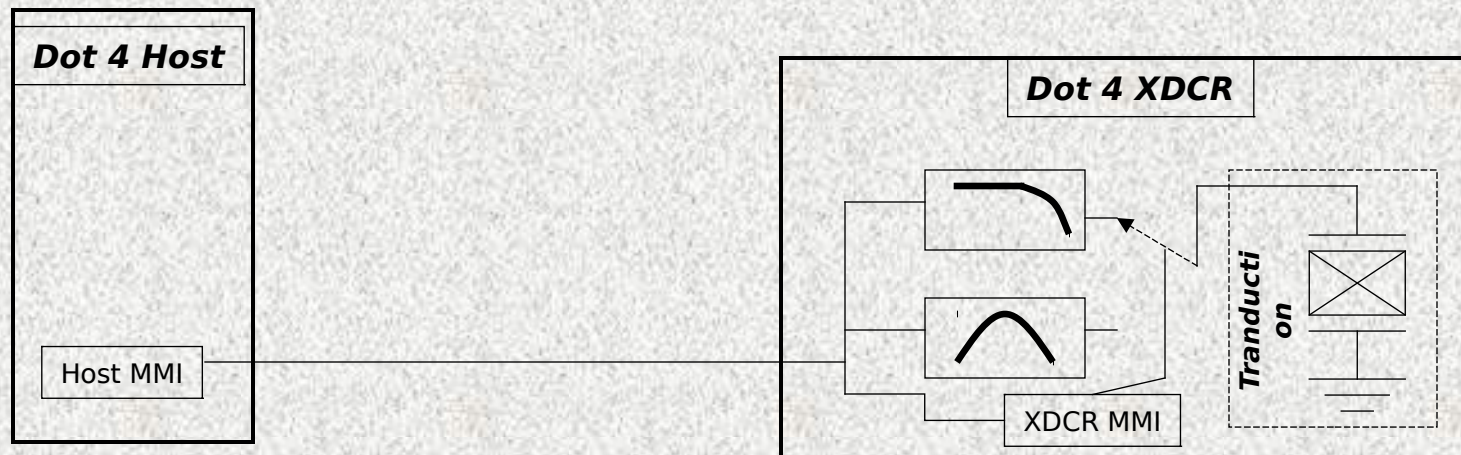   - Filtering (Internally A, C Weighted Microphones)

Core Functionality of Dot 4

- Self Configuration
  - Expose Configurations To Dot 4 Host
    - Active or Passive Config (Multi-Drop Sensors)

Core Functionality of Dot 4

- Self Configuration
  - Expose Configurations To Dot 4 Host
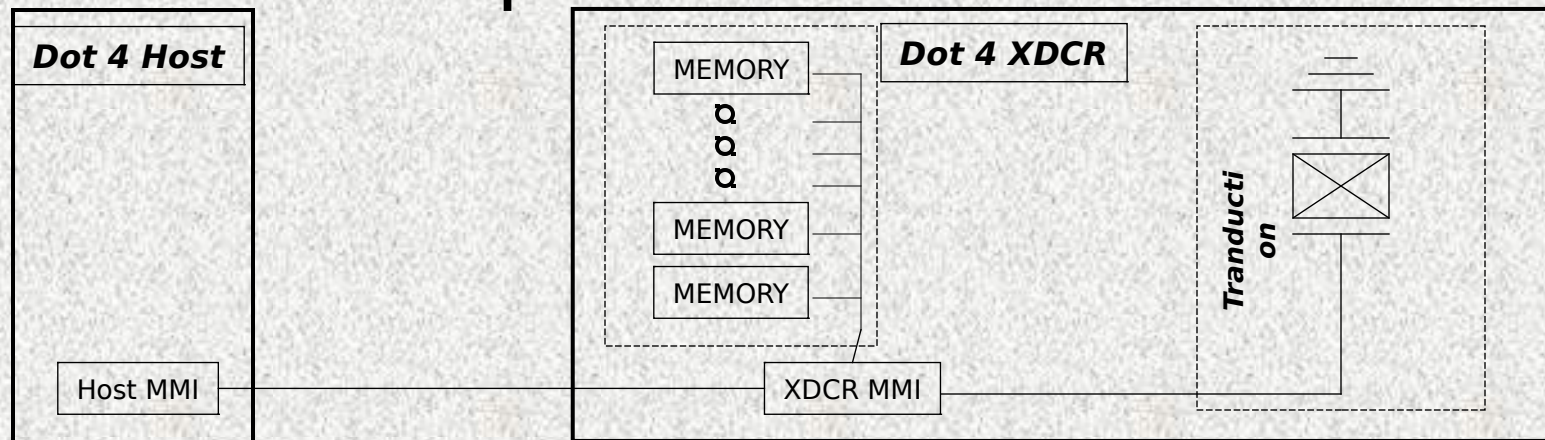   - Selective Signal Conditioning In Sensor

Presentation Roadmap

- Core Functionality of IEEE 1451.4
- *Scalability*
- Flexibility
- TMS Venona

Scalability

- Current 256+64 Bit Memory (DS2430)
- 4 kBit Memory (DS2433)
- Multi-Chip Transducers

Presentation Roadmap

- Core Functionality of IEEE 1451.4
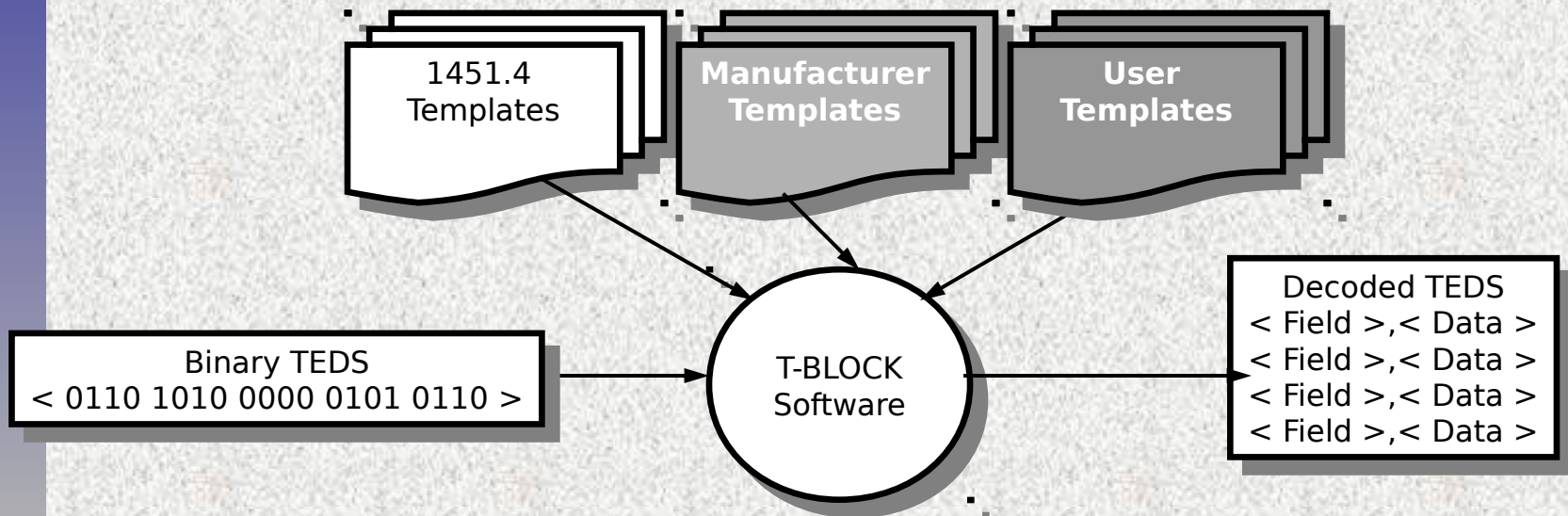- Scalability
- ***Flexibility***
- TMS Venona

Dot 4 Flexibility

- Divide Self-Identifying TEDS into 2 parts:
  - Basic TEDS
    - Contains common info for all 1451.4 transducers: Mfr., Model, Serial
  - Extended TEDS
    - Contains decoding information, calibration information, others…

Dot 4 Flexibility

- Dot 4 Host Relies Upon External Templates To Decode The TEDS
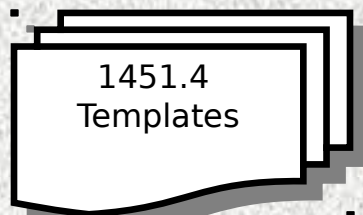
Dot 4 Flexibility

- IEEE Templates
  - Currently 22 templates (accels, microphones, charge amps)
- Manufacturer Templates
  - Brings in other sensor types
- User Templates
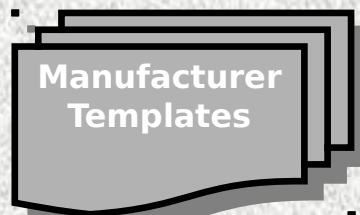 - High end users, specific applications

Dot 4 Flexibility
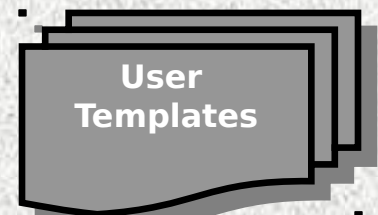
- How Standard Is Your TEDS Template?

All Groups Are Dot 4 Compliant

1451.4 Templates	Manufacturer Templates	User Templates

Std. PCB Accels
Std. Endevco Accels
TMS Microphones
B&K Microphones

Force Sensors
PCB Hammers
others…

TBD…

More Recognized   *Less Recognized*
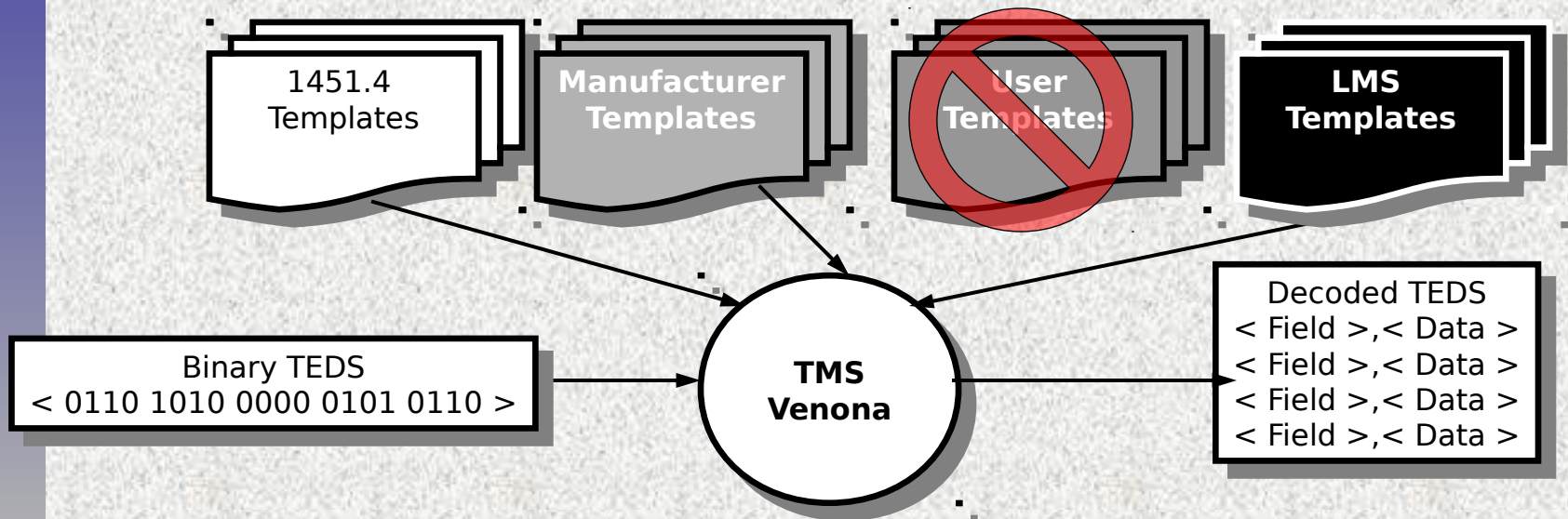
Presentation Roadmap

- Core Functionality of IEEE 1451.4
- Scalability
- Flexibility
- ***TMS Venona***

Venona - A Cross-Platform TEDS Engine

- Independent of Host Hardware
- Applicable To All PCB Group Products

Venona - Layer Separation

- Remove Hardware Dependency

Direct Connection

PDA For Display

Venona

Serial Port

Personal Computer

Signal Conditioner